## THE LAWS OF FÉSOLE.

## A FAMILIAR TREATISE

ON THE ELEMENTARV PRINCIPLES AND PRACTICE

DRAWING AND PAINTING.

As UETERMINED BV THE TUSCAN MASTERS.

AKRANGED FOR THE USE OF SCHOOLS.

## HY

J O H N RUSKIN, LL.D.,

PARTI.


GEORGE ALLEN, SUNNYSIDE, ORPINGTON, KENT. 1877.

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SCHOOLS OF ST GEORGE
Elementary Drawing, Plate I
THE 'I'WO SHIELDS

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OF

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by
J O H N R USKIN, LL.D.,
HONORARY STUDENT OF CHRIST CHURCH, AND SLADE PROFESSOR OF FINE ART.

## PART I.

> GEORGE ALLEN, SUNNYSIDE, ORPINGTON, KENT. 1877.

## PREFACE.

THE publication of this book has been delayed by what seemed to me vexatious accident, or (on my own part) unaccountable slowness in work: but the delay thus enforced has enabled me to bring the whole into a form which I do not think there will be any reason afterwards to modify in any important particular, containing a system of instruction in art generally applicable in the education of gentlemen; and securely elementary in that of professional artists. It has been made as simple as I can in expression, and is specially addressed, in the main teaching of it, to young people, (extending the range of that term to include students in our universities;) and it will be so addressed to them, that if they have not the advantage of being
near a master, they may teach themselves, by careful reading, what is essential to their progress. But I have added always to such initial principles, those which it is desirable to state for the guidance of advanced scholars, or the explanation of the practice of exemplary masters.

The exercises given in this book, when their series is completed, will form a code of practice which may advisably be rendered imperative on the youth of both sexes who show disposition for drawing. In general, youths and girls whe do not wish to draw should not be compelled to draw ; but when natural disposition exists, strong enough to render wholesome discipline endurable with patience, every well-trained youth and girl ought to be taught the elements of drawing, as of music, early, and accurately.

To teach them inaccurately is incleed, strictly speaking, not to teach them at all ; or worse than that, to prevent the possibility of their ever being taught. The ordinary methods of watercolour sketching, chalk drawing, and the like, now
so widely taught by second-rate masters, simply prevent the pupil from ever understanding the qualities of great art, through the whole of his after-life.

It will be found also that the system of practice here proposed differs in many points, and in some is directly adverse, to that which has been for some years instituted in our public schools of art. It might be supposed that this contrariety was capricious or presumptuous, unless I gave my reasons for it, by specifying the errors of the existing popular system.

The first error in that system is the forbidding accuracy of measurement, and enforcing the practice of guessing at the size of objects. Now it is indeed often well to outline at first by the eye, and afterwards to correct the drawing by measurement ; but under the present method, the student finishes his inaccurate drawing to the end, and his mind is thus, during the whole progress of his work, accustomed to falseness in every contour. Such a practice is not to be characterized
as merely harmful,-it is ruinous. No student who has sustained the injury of being thus accustomed to false contours, can ever recover precision of sight. Nor is this all: he cannot so much as attain to the first conditions of artjudgment. For a fine work of art differs from a vulgar one by subtleties of line which the most perfect measurement is not, alone, delicate enough to detect; but to which precision of attempted measurement directs the attention; while the security of boundaries, within which maximum error must be restrained, enables the hand gradually to approach the perfectness which instruments cannot. Gradually, the mind then becomes conscious of the beauty which, even after this honest effort, remains inimitable; and the faculty of discrimination increases alike through failure and success. But when the true contours are voluntarily and habitually departed from, the essential qualities of every beautiful form are necessarily lost, and the student remains for ever unaware of their existence.

The second error in the existing system is the
enforcement of the execution of finished drawings in light and shade, before the student has acquired delicacy of sight enough to observe their gradations. It requires the most careful and patient teaching to develop this faculty; and it can only be developed at all by rapid and sarious practice from natural objects, during which the attention of the student must be directed only to the facts of the shadows themselves, and not at all arrested on methods of producing them. He may even be allowed to produce them as he likes, or as he can ; the thing required of him being only that the shade be of the right darkness, of the right shape, and in the right relation to other shades round it; and not at all that it shall be prettily cross-hatched, or deceptively transparent. But at present, the only virtues required in shadow are that it shall be pretty in texture and picturesquely effective; and it is not thought of the smallest consequence that it should be in the right place, or of the right depth. And the consequence is that the student remains, when he
becomes a painter, a mere manufacturer of conventional shadows of agreeable texture, and to the end of his life incapable of perceiving the conditions of the simplest natural passage of chiaroscuro.

The third error in the existing code, and, in ultimately destructive power, the worst, is the construction of entirely symmetrical or balanced forms for exercises in ornamental design ; whereas every beautiful form in this world, is varied in the minutix of the balanced sides. Place the most beautiful of human forms in exact symmetry of position, and curl the hair into equal curls on both sides, and it will become ridiculous, or monstrous. Nor can any law of beauty be nobly observed without occasional wilfulness of violation.

The moral effect of these monstrous conditions of ornament on the mind of the modern designer is very singular. I have found, in past experience in the Working Men's College, and recently at Oxford, that the English student must at present of necessity be inclined to one of two opposite errors, equally fatal. Either he will draw things
mechanically and symmetrically altogether, and represent the two sides of a leaf, or of a plant, as if he had cut them in one profile out of a doubled piece of paper; or he will dash and scrabble for effect, without obedience to law of any kind : and I find the greatest difficulty, on the one hand, in making ornamental draughtsmen draw a leaf of any shape which it could possibly have lived in ; and, on the other, in making landscape draughtsmen draw a leaf of any shape at all. So that the process by which great work is achieved, and by which only it can be achieved, is in both directions antagonistic to the present English mind. Real artists are absolutely submissive to law, and absolutely at ease in fancy; while we are at once wilful and dull ; resolved to have our own way, but when we have got it, we cannot walk two yards without holding by a railing.

The tap-root of all this mischief is in the endeavour to produce some ability in the student to make money by designing for manufacture. No student who makes this his primary object
will ever be able to design at all: and the very words 'School of Design' involve the profoundest of Art fallacies. Drawing may be taught by tutors: but Design only by Heaven ; and to every scholar who thinks to sell his inspiration, Heaven refuses its help.

To what kind of scholar, and on what conditions, that help has been given hitherto, and may yet be hoped for, is written with unevadeable clearness in the history of the Arts of the Past. And this book is called 'The Laws of Fésole' because the entire system of possible Christian Art is founded on the principles established by Giotto in Florence, he receiving them from the Attic Greeks through Cimabue, the last of their disciples, and engrafting them on the existing art of the Etruscans, the race from which both his master and he were descended.

In the centre of Florence, the last great work of native Etruscan architecture, her Baptistery, and the most perfect work of Christian architecture, her Campanile, stand within a hundred paces of each
other: and from the foot of that Campanile, the last conditions of design which preceded the close of Christian art are seen in the dome of Brunelleschi. Under the term 'laws of Fésole,' therefore, may be most strictly and accurately arranged every principle of art, practised at its purest source, from the twelfth to the fifteenth century inclusive. And the purpose of this book is to teach our English students of art the elements of these Christian laws, as distinguished from the Infidel laws of the spuriously classic school, under which, of late, our students have been exclusively trained.

Nevertheless, in this book the art of Giotto and Angelico is not taught because it is Christian, but because it is absolutely true and good: neither is the Infidel art of Palladio and Giulio Romano forbidden because it is Pagan; but because it is false and bad; and has entirely destroyed not only our English schools of art, but all others in which it has ever been taught, or trusted in.

Whereas the methods of draughtsmanship established by the Florentines, in true fulfilment of

Etruscan and Greek tradition, are insuperable in execution, and eternal in principle; and all that I shall have occasion here to add to them will be only such methods of their application to landscape as were not needed in the day of their first invention ; and such explanation of their elementary practice as, in old time, was given orally by the master.

It will not be possible to give a sufficient number of examples for advanced students (or on the scale necessary for some purposes) within the compass of this handbook; and I shall publish therefore together with it, as I can prepare them, engravings or lithographs of the examples in my Oxford schools, on folio sheets, sold separately. But this Handbook will contain all that was permanently valuable in my former Elements of Drawing, together with such further guidance as my observance of the result of those lessons has shown me to be necessary. The work will be completed in twelve numbers, each containing at least two engravings, the whole forming, when completed,
two volumes of the ordinary size of my published works ; the first, treating mostly of drawing, for beginners; and the second, of colour, for advanced pupils. I hope also that I may prevail on the author of the excellent little treatise on Mathematical Instruments (Weale's Rudimentary Series, No. S2), to publish a lesson-book with about onefourth of the contents of that formidably comprehensive volume, and in larger print, for the use of students of art; omitting therefrom the descriptions of instruments uscful only to engineers, and without forty-cight pages of advertisements at the end of it. Which, if I succeed in persuading him to do, I shall be able to make permanent reference to his pages for elementary lessons on construction.

Many other things I meant to say, and advise, in this Preface; but find that were I to fulfil such intentions, my Preface would become a separate book, and had better therefore end itself forthwith, only desiring the reader to observe, in sum, that the degree of success, and of pleasure, which he will finally achieve, in these or any other art-
exercises on a sound foundation, will virtually depend on the degree in which he desires to understand the merit of others, and to make his own talents permanently useful. The folly of most amateur work is chiefly in its selfishness, and self-contemplation ; it is far better not to be able to draw at all, than to waste life in the admiration of one's own littlenesses;--or, worse, to withdraw, by merely amusing dexterities, the attention of other persons from noble art. It is impossible that the performance of an amateur can ever be otherwise than feeble in itself; and the virtue of it consists only in having enabled the student, by the effect of its production, to form true principles of judgment, and direct his limited powers to useful purposes.

## THE LAWS OF FÉSOLE.

## CHAPTER I.

ALL GREAT ART IS PRAISE.

1. [HE art of man is the expression of his rational and disciplined delight in the forms and laws of the creation of which he forms a part.
2. In all first definitions of very great things, there must be some obscurity and want of strictness; the attempt to make them too strict will only end in wider obscurity. We may indeed express to our friend the rational and disciplined pleasure we have in a landscape, yet not be artists : but it is true, nevertheless, that all art is the skilful expression of such pleasure ; not always, it may be, in a thing scen, but only in a law felt ; yct still, examined accurately, always in the Creation, of
which the creature forms a part; and not in itself merely. Thus a lamb at play, rejoicing in its own life only, is not an artist; -but the lamb's shepherd, carving the piece of timber which he lays for his door-lintel into beads, is expressing, however unconsciously, his pleasure in the laws of time, measure, and order, by which the earth moves, and the sun abides in heaven.
3. So far as reason governs, or discipline restrains, the art even of animals, it becomes human, in those virtues; but never, I believe, perfectly human, because it never, so far as I have seen, expresses even an unconscious delight in divine laws. A nightingale's song is indced exquisitely divided; but only, it seems to me, as the ripples of a stream, by a law of which the waters and the bird are alike unconscious. The bird is conscious indeed of joy and love, which the waters are not ;-but, (thanks be to God,) joy and love are not Arts ; nor are they limited to Humanity. But the lovesong becomes Art, when, by reason and discipline, the singer has become conscious of the ravishment in its divisions to the lute.
4. Farther to complete the range of our definition, it is to be remembered that we express our delight in a beautiful or lovely thing no less by lament for its loss, than gladness in its presence, much
art is therefore tragic or pensive; but all true art is praise.*
5. There is no exception to this great law, for even caricature is only artistic in conception of the beauty of which it exaggerates the absence. Caricature by persons who cannot conceive beauty, is monstrous in proportion to that dulness ; and, even to the best artists, perseverance in the habit of it is fatal.
6. Fix, then, this in your mind as the guiding principle of all right practical labour, and source of all healthful life energy, - that your art is to be the praise of something that you love. It may be only the praise of a shell or a stone; it may be the praise of a hero ; it may be the praise of God:your rank as a living creature is determined by the height and breadth of your love; but, be you

* As soon as the artist forgets his function of praise in that of imitation, his art is lost. His business is to give, by any means, however imperfect, the idea of a beautiful thing; not, by any means, however perfect, the realization of an ugly one. In the early and vigorous days of Art, she endeavoured to praise the saints, though she made but awkward figures of them. Gradually becoming able to represent the human body with accuracy, she pleased herself greatly at first in this new power, and for about a century decorated all her buildings with human bodies in different positions. But there was nothing to be praised in persons who had no other virtue than that of possessing bodies, and no other means of expression than unexpected manners of crossing their legs. Surprises of this nature necessarily have their limits, and the Arts founded on Anatomy expired when the changes of posture were exhausted.
small or great, what healthy art is possible to you must be the expression of your true delight in a real thing, better than the art. You may think, perhaps, that a bird's nest by William Hunt is better than a real bird's nest. We indeed pay a large sum for the one, and scarcely care to look for, or save, the other. But it would be better for us that all the pictures in the world perished, than that the birds should cease to build nests.

And it is precisely in its expression of this inferiority, that the drawing itself becomes valuable. It is because a photograph cannot condemn itself, that it is worthless. The glory of a great picture is in its shame; and the charm of it, in speaking the pleasure of a great heart, that there is something better than picture. Also it speaks with the voices of many: the efforts of thousands dead, and their passions, are in the pictures of their children to-day. Not with the skill of an hour, nor of a life, nor of a century, but with the help of numberless souls, a beautiful thing must be done. And the obedience, and the understanding, and the pure natural passion, and the perseverance, in secula seculorum, as they must be given to produce a picture, so they must be recognized, that we may perceive onc.
7. This is the main lesson I have been teaching,
so far as I have been able, through my whole life, -Only that picture is noble, which is painted in love of the reality. It is a law which embraces the highest scope of Art; it is one also which guides in sccurity the first steps of it. If you desire to draw, that you may represent something that you care for, you will advance swiftly and safely. If you desire to draw, that you may make a beautiful drawing, you will never make one.
8. And this simplicity of purpose is farther useful in closing all discussions of the respective grace or admirableness of method. The best painting is that which most completely represents what it undertakes to represent, as the best language is that which most clearly says what it undertakes to say.
9. Given the materials, the limits of time, and the conditions of place, there is only one proper method of painting.* And since, if painting is to be entirely good, the materials of it must be the best possible, and the conditions of time and place entirely favourable, there is only one manner of entircly good painting. 'The so-called 'styles' of

[^0]artists are either adaptations to imperfections of material, or indications of imperfection in their own power, or the knowledge of their day. The great painters are like each other in their strength, and diverse only in weakness.

Io. The last aphorism is true even with respect to the dispositions which induce the preference of particular characters in the subject. Perfect art perceives and reflects the whole of nature : imperfect art is fastidious, and impertinently prefers and rejects. The foible of Correggio is grace, and of Mantegna, precision: Veronese is narrow in his gaiety, Tintoret in his gloom, and Tumer in his light.

I I . But, if we know our weakness, it becomes our strength ; and the joy of every painter, by which he is made narrow, is also the gift by which he is made delightful, so long as he is modest in the thoughit of his distinction from others, and no less severe in the indulgence, than careful in the cultivation, of his proper instincts. Recognizing his place, as but one quaintly-veined pebble in the various pavement,-one richly-fused fragment, in the vitrail of life,-he will find, in his distinctness, his glory and his use ; but destroys himself in demanding that all men should stand within his compass, or see through his colour.
12. The differences in style instinctively caused by personal character are however of little practical moment, compared to those which are rationally adopted, in adaptation to circumstance.

Of these variously conventional and inferior modes of work, we will examine such as deserve note in their proper place. But we must begin by learning the manner of work which, from the elements of it to the end, is completely right, and common to all the masters of consummate schools. In whom these two great conditions of excellence are always discernible,-that they conceive more beautiful things than they can paint, and desirc only to be praised in so far as they can represent these, for subjects of higher praising.

## CHAPTER II.

THE THREE DIVISIONS OF THE ART OF PAINTING.

' IN order to produce a completely representative picture of any object on a flat surface, we must outline it, colour it; and shade it. Accordingly, in order to become a complete artist, you must learn these three following modes of skill completely. First, how to outline spaces with accurate and delicate lines. Secondly, how to fill the outlined spaces with accurate, and delicately laid, colour. Thirdly, how to gradate the coloured spaces, so as to express, accurately and delicately, relations of light and shade.
2. By the word 'accurate' in these sentences, I mean nearly the same thing as if I had written 'true ;' but yet I mean a little more than verbal truth : for, in many cases, it is possible to give the strictest truth in words without any painful care ; but it is not possible to be true in lines, without constant care, or 'accuracy.' We may say, for instance, without laborious attention, that the
tower of Garisenda is a hundred and sixty feet high, and leans nine feet out of the perpendicular. But we could not draw the line representing this relation of mine feet horizontal to a hundred and sixty vertical, without extreme care.

In other cases, even by the strictest attention, it is not possible to give complete or strict truth in words. We could not, by any number of words, describe the colour of a riband so as to enable a mercer to match it witlout seeing it. But an 'accurate' colourist can convey the required intelligence at once, with a tint on paper. Neither would it be possible, in language, to explain the difference in gradations of shade which the eye perceives between a beautifully rounded and dimpled chin, and a more or less determinedly angular one. But on the artist's 'accuracy' in distinguishing and representing their relative depths, not in one feature only, but in the harmony of all, depend his powers of expressing the charm of beauty, or the force of character ; and his means of enabling us to know Joan of Arc from Fair Rosamond.
3. Of these three tasks, outline, colour, and shade, outline, in perfection, is the most difficult ; but students must begin with that task, and are masters when they can see to the end of it, though they never reach it.

To colour is easy if you can see colour ; and impossible if you cannot.*

To shade is very difficult; and the perfections of light and shadow have been rendered by few masters ; but in the degree sufficient for good work, it is within the reach of every student of fair capacity who takes pains.
5. The order in which students usually learn these three processes of art is in the inverse ratio of their difficulty. They begin with outline, proceed to shade, and conclude in colour. While, naturally, any clever house decorator can colour, and any patient Academy pupil shade ; but Raphael at his full strength is plagued with his outline, and tries half a dozen backwards and forwards before he pricks his chosen one down. $\dagger$

Nevertheless, both the other exercises should be practised with this of outline, from the beginning. We must outline the space which is to be filled with colour, or explained by shade ; but we cannot handle the brush too soon, nor too long continue the exercises of the lead $\ddagger$ point. Every system

[^1]is imperfect which pays more than a balanced and equitable attention to any one of the three skills, for all are necessary in equal perfection to the completeness of power. There will indeed be found great differences between the faculties of different pupils to express themselves by one or other of these methods ; and the natural disposition to give character by delineation, charm by colour, or force by shade, may be discreetly encouraged by the master, after moderate skill has been attained in the collateral exercises. But the first condition of steady progress for every pupil,-no matter what their gifts, or genius,--is that they should be taught to draw a calm and true outline, entirely decisive, and admitting no error avoidable by patience and attention.
7. We will begin therefore with the simplest conceivable practice of this skill, taking for subject the two elementary forms which the shepherd of Fésole gives us, (Fig. I,) supporting the desk of the master of Geometry.

You will find the original bas-relief represented very sufficiently in the nineteenth of the series of photographs from the Tower of Giotto, and may thus for yourself ascertain the accuracy of this outline, which otherwise you might suppose careless, in that the suggested square is not a true one, having
two acute and two obtuse angles; nor is it set upright, but with the angle on your right hand higher than the opposite one, so as partly to comply with the slope of the desk. But this is one of the first signs that the sculpture is by a master's hand. And the first thing a modern restorer would do, would


Fig. 1.
be to "correct the mistake," and give you, instead, the, to him, more satisfactory arrangement. (Fig. 2.)
8. We must not, however, permit ourselves, in the beginning of days, to draw inaccurate squares; such liberty is only the final reward of obedience, and the generous breaking of law, only to be allowed to the loyal.

Take your compasses, therefore, and your ruler, and smooth paper over which your pen will glide
unchecked. And take above all things store of patience; and then,--but for what is to be done then, the directions had best be reserved to a fresh chapter, which, as it will begin a group of exercises of which you will not at once perceive the


Fig. 2.
intention, had better, I think, be preceded by this following series of general aphorisms, which I wrote for a young Italian painter, as containing what was likely to be most useful to him in briefest form ; and which for the same reason I here give, before entering on specific practice.

## APHORISMS.

I.

The greatest art represents everything with absolute sincerity, as far as it is able. But it chooses the best things to represent, and it places them
in the best order in which they can be seen. You can only judge of what is best, in process of time, by the bettering of your own character. What is true, you can learn now, if you will.
II.

Make your studies always of the real size of things. A man is to be drawn the size of a man ; and a cherry the size of a cherry.
'But I camnot draw an elephant his real size'?
There is no occasion for you to draw an elephant.
' But nobody can draw Mont Blanc his real size'?
No. Therefore nobody can draw Mont Blanc at all ; but only a distant view of Mont Blanc. You may also draw a distant view of a man, and of an elephant, if you like; but you must take care that it is seen to be so, and not mistaken for a drawing of a pigmy, or a mouse, near.
'But there is a great deal of good miniature painting' ?

Yes, and a great deal of fine cameo-cutting. But I am going to teach you to be a painter, not a locket-decorator, or medallist.

> III.

Direct all your first efforts to acquire the power of drawing an absolutely accurate outline of any
object, of its real size, as it appears at a distance of not less than twelve feet from the eye. All greatest art represents objects at not less than this distance; because you cannot see the full stature and action of a man if you go nearer him. The difference between the appearance of any-thing-say a bird, fruit, or leaf-at a distance of twelve feet or more, and its appearance looked at closely, is the first difference also between Titian's painting of it, and a Dutchman's.

## 1V.

Do not think, by learning the nature or structure of a thing, that you can learn to draw it. Anatomy is necessary in the education of surgeons; botany in that of apothecaries ; and geology in that of miners. But none of the three will enable you to draw a man, a flower, or a mountain. You can learn to do that only by looking at them; not by cutting them to pieces. And don't think you can paint a peach, because you know there's a stone inside; nor a face, because you know a skull is.
V.

Next to outlining things accurately, of their true form, you must learn to colour them delicately, of their true colour.

## VI.

If you can match a colour accurately, and lay it delicately, you are a painter; as, if you can strike a note surely, and deliver it clearly, you are a singer. You may then choose what you will paint, or what you will sing.
VII.

A pea is green, a cherry red, and a blackberry black, all round.
VIII.

Every light is a shade, compared to higher lights, till you come to the sun ; and every shade is a light, compared to deeper shades, till you come to the night. When, therefore, you have outlined any space, you have no reason to ask whether it is in light or shade, but only, of what colour it is, and to what depth of that colour.
IX.

You will be told that shadow is grey. But Correggio, when he has to shade with one colour, takes red chalk.
x.

You will be told that blue is a retiring colour, because distant mountains are blue. The sun
setting behind them is nevertheless farther off, and you must paint it with red or yellow.

## XI.

> " Please paint me my white cat," said little Imelda. "Child," answered the Bolognese Professor, "in the grand school, all cats are grey."

## XII.

Fine weather is pleasant; but if your picture is beautiful, people will not ask whether the sun is out or in.

## XIII.

When you speak to your friend in the street, you take him into the shade. When you wish to think you can speak to him in your picture, do the same.
XIV.

Be economical in everything, but especially in candles. When it is time to light them, go to bed. But the worst waste of them is drawing by them.
XV.

Never, if you can help it, miss seeing the sunset and the dawn. And never, if you can help it, see anything but dreams between them.

## XVI.

'A fine picture, you say?' "The finest possible; St. Jerome, and his lion, and his arm-chair. St. Jerome was painted by a saint, and the Lion by a hunter, and the chair by an upholsterer."

My compliments. It must be very fine; but I do not care to see it.

> xviI.
' Three pictures, you say? and by Carpaccio!' "Yes-St. Jerome, and his lion, and his arm-chair. Which will you see?" 'What does it matter? The one I can see soonest.'
xviII.

Great painters defeat Death ;-the vile, adorn him, and adore. XIX.

If the picture is beautiful, copy it as it is ; if ugly, let it alone. Only Heaven, and Death, know what it zuas.
xx.
'The King has presented an Etruscan vase, the most beautiful in the world, to the Museum of Naples. What a pity I cannot draw it!'

In the meantime, the housemaid has broken a
kitchen teacup; let me sce if you can draw one of the pieces.
XXI.

When you would do your best, stop, the moment you begin to feel difficulty. Your drawing will be the best you can do; but you will not be able to do another so good to-morrow.
XXII.

When you would do better than your best, put your full strength out, the moment you feel a difficulty. You will spoil your drawing to-day; but you will do better than your to-day's best, to-morrow.

XXIII
"The enemy is too strong for me to-day," said the wise young general. "I won't fight him ; but I won't lose sight of him."
XXIV.
"I can do what I like with my colours, now," said the proud young scholar. "So could I, at your age," answered the master ; "but now, I can only do what other people like."

## CHAPTER III.

FIRST EXERCISE IN RIGHT LINES, THE QUARTERING OF ST. GEORGE'S SHIELD.
I. $\int$ AKE your compasses,* and measuring an inch on your ivory rule, mark that dimension by the two dots at $B$ and $C$, (see the uppermost figure on the left in Plate I ,) and with your black ruler draw a straight line between them, with a fine steel pen and common ink. $\dagger$ Then measure the same length, of an inch, down from $B$, as nearly perpendicular as you can, and mark the point $A$; and divide the height $A B$ into four equal parts with the compasses, and mark them with dots, drawing every dot as a neatly circular point, clearly visible. This last finesse will be an essential part of your drawing practice ; it is very irksome to draw such dots patiently, and very difficult to draw them well.

[^2]Then mark, not now by measure, but by eye, the remaining corner of the square, D , and divide the opposite side C D, by dots, opposite the others as nearly as you can guess. Then draw four level lines without a ruler, and without raising your pen, or stopping, slowly, from dot to dot, across the square. The four lines altogether should not take less,but not much more,-than a quarter of a minute in the drawing, or about four seconds each. Repeat this practice now and then, at leisure minutes, until you have got an approximately well-drawn group of five lines ; the point D being successfully put in accurate corner of the square. Then similarly divide the lines A D and BC, by the eye, into four parts, and complete the figure as on the right hand at the top of Plate 1 , and test it by drawing diagonals across it through the corners of the squares, till you can draw it true.
2. Contenting yourself for some time with this square of sixteen quarters for hand practice, draw also, with extremest accuracy of measurement possible to you, and finely ruled lines such as those in the plate, the inch square, with its side sometimes divided into three parts, sometimes into five, and sometimes into six, completing the interior nine, twenty-five, and thirty-six squares with utmost precision; and do not be satisfied with these till
diagonals afterwards drawn, as in the figure, pass precisely through the angles of the square.

Then, as soon as you can attain moderate precision in instrumental drawing, construct the central figure in the plate, drawing, first the square ; then, the lines of the horizontal bar, from the midmost division of the side divided into five. Then draw the curves of the shield, from the uppermost corners of the cross-bar, for centres ; then the vertical bar, also one-fifth of the square in breadth; lastly, find the centre of the square, and draw the enclosing circle, to test the precision of all. More advanced pupils may draw the inner line to mark thickness of shield; and lightly tint the cross with rose-colour.

In the lower part of the plate is a first study of a feather, for exercise later on ; it is to be copied with a fine steel pen and common ink, having been so drawn with decisive and visible lines, to form steadiness of hand.*
3. The feather is one of the smallest from the upper edge of a hen's wing ; the pattern is obscure, and not so well adapted for practice as others to be

[^3]?


SCHOOLS OF ST GEORGE.
Elementary Drawing, Plate II
CONSTRUCTION FOR PLACING THE HONOUR-POINTS .
given subsequently, but I like best to begin with this, under St. George's shield ; and whether you can copy it or not, if you have any natural feeling for beauty of line, you will see, by comparing the two, that the shield form, mechanically constructed, is meagre and stiff ; and also that it would be totally impossible to draw the curves which terminate the feather below by any mechanical law ; much less the various curves of its filaments. Nor can we draw even so simple a form as that of a shield beautifully, by instruments. But we may come nearer, by a more complex construction, to beautiful form ; and define at the same time the heraldic limits of the bearings. This finer method is given in Plate 2, on a scale twice as large, the shield being here two inches wide. And it is to be constructed as follows.
4. Draw the square $A B C D$, two inches on the side, with its diagonals $\mathrm{A} C, \mathrm{BD}$, and the vertical $\mathrm{P} Q$ through its centre O ; and observe that, henceforward, I shall always use the words 'vertical' for 'perpendicular,' and 'level' for 'horizontal,' being shorter, and no less accurate.

Divide O Q, OP, each into three equal parts by the points, $\mathrm{K}, a ; \mathrm{N}, d$.

Through $a$ and $d$ draw the level lines, cutting the diagonals in $b, c, c$, and $f$; and produce $b c$, cutting
the sides of the square in $m$ and $n$, as far towards $x$ and $y$ as you see will be necessary.

With centres $m$ and $u$, and the equal radii $m a$, $n a$, describe semicircles, cutting $x y$ in $x$ and $y$. With centres $x$ and $y$, and the equal radii $x n$, $y m$, describe arcs $m \mathrm{~V}, u \mathrm{~V}$, cutting each other and the line $\mathrm{Q} P$, produced, in V .

The precision of their concurrence will test your accuracy of construction.
5. The form of shield BCV , thus obtained, is not a perfect one, because no perfect form (in the artist's sense of the word 'perfectness') can be drawn geometrically; but it approximately represents the central type of English shield.

It is necessary for you at once to learn the names of the nine points thus obtained, called 'honour-points,' by which the arrangement and measures of bearings are determined.

All shields are considered heraldically to be square in the field, so that they can be divided accurately into quarters.

I am not aware of any formerly recognized geometrical method of placing the honour-points in this field:--that which I have here given will be found convenient for strict measurement of the proportions of bearings.
6. Considering the square $\mathrm{A} \mathrm{B} \mathrm{C} \mathrm{D} \mathrm{as} \mathrm{the} \mathrm{field}$,
and removing from it the lines of construction, the honour-points are seen in their proper places, in the lower part of the plate.

These are their names,-
$\left.\begin{array}{clll}a & \text { Middle } & \text { Chief } \\ b & \text { Dexter } & \text { Chief } \\ c & \text { Sinister } & \text { Chief } \\ \mathrm{K} & \text { Honour } & \\ \mathrm{O} & \text { Fesse } & \\ \mathrm{N} & \text { Numbril } \\ d & \text { Middle } & \text { Base } \\ e & \text { Dexter } & \text { Base } \\ f & \text { Sinister } & \text { Base }\end{array}\right\}$

I have placed these letters, with some trouble, as I think best for help of your memory.

The $a, b, c ; d, e, f$, are, I think, most conveniently placed in upper and under series: I could not, therefore, put $f$ for the Fesse point, but the $O$ will remind you of it as the sign for a belt or girdle. Then K will stand for knighthood, or the honour-point, and putting N for the numbril, which is otherwise difficult to remember, we have, reading down, the syllable KON , the Teutonic beginning of KONIG or King, all which may be easily remembered.

And now look at the first plate of the large

Oxford series.* It is engraved from my free-hand drawing in the Oxford schools; and is to be copied, as that drawing is executed, with pencil and colour.

In which sentence I find myself face to face with a difficulty of expression which has long teazed me, and which I must now conclusively, with the reader's good help, overcome.
7. In all classical English writing on art, the word 'pencil,'--in all classical French writing, the word ' pinceau,'-and in all classical Italian writing, the word ' pennello,' means the painter's instrument, the brush. $\dagger$

It is entirely desirable to return, in England, to this classical use with constant accuracy, and resolutely to call the black-lead pencil, the 'leadcrayon ;' or, for shortness, simply 'the lead.' In this book I shall generally so call it, saying, for instance, in the case of this diagram, "draw it first with the lead." 'Crayon,' from 'craie,' chalk, I shall use instead of 'chalk;' meaning when I say black crayon, common black chalk; and when I say white crayon, common white chalk; while

[^4]I shall use indifferently the word 'pencil' for the instrument whether of water-colour or oil painting.
8. Construct then the whole of this drawing, Plate 1, Oxford series, first with a light lead line; then take an ordinary* camel's hair pencil, and with free hand follow the lead lines in colour. Indian red is the colour generally to be used for practice, being cheap and sufficiently dark, but lake or carmine work more pleasantly for a difficult exercise like this.
9. In laying the colour lines, you may go over and over again, to join them and make them even, as often as you like, but must not thicken the thin ones; nor interrupt the thickness of the stronger outline so as to confuse them at all with each other. Giotto, Durer, or Mantegna, would draw them at once without pause or visible error, as far as the colour in the pencil lasted. Only

[^5]two or three years ago I could nearly have done so myself, but my hand now shakes a little; the drawing in the Oxford schools is however very little retouched over the first line.
ro. We will at this point leave our heraldry,* because we cannot better the form of our shield until we can draw lines of more perfect, that is to say, more varied and interesting, curvature, for its sides. And in order to do this we must learn how to construct and draw curves which cannot be drawn with any mathematical instrument, and yet whose course is perfectly determined.

* Under the general influence of Mr. Gradgrind, there has been lately published a book of "Heraldry founded on facts" (The Pursuivant of Arms,-Chatto and Windus), which is worth buying, for two reasons: the first, that its 'facts' are entirely trustworthy and useful; (well illustrated in minor woodcut also, and, many, very curious and new, -the second, that the writer's total ignorance of art, and his education among vulgar modernisms, have caused him to give figure-illustrations, wherever he draws either man or beast, as at pages 62 and 106, whose horrible vulgarity will be of good future-service as a type to us of the maximum in that particular. But the curves of shields are, throughout, admirably chosen and drawn, to the point mechanically possible.


## CHAPTER IV.

FIRST EXERCISE IN CURVES. THE CIRCLE.

1. $A$MONG the objects familiarly visible to us, and usually regarded with sentiments of admiration, few are more classically representative of Giotto's second figure, inscribed in his square, than that by common consent given by civilized nations to their pieces of money. We may, I hope, under fortunate augury, limit ourselves at first to the outline (as, in music, young students usually begin with the song), of Sixpence.
2. Supposing you fortunate enough to possess the coin, may I ask you to lay it before you on a stiff card. Do you think it looks round? It does not, unless you look exactly down on it. But let us suppose you do so, and have to draw its outline under that simple condition.

Take your pen, and do it then, beside the sixpence.
"You cannot?"
Neither can I. Giotto could, and perhaps after
working due time under the laws of Fésole, you may be able to do it, too, approximately. If I were as young as you, I should at least encourage that hope. In the meantime you must do it ignominiously, with compasses. Take your pencompasses, and draw with them a circle the size of a sixpence.*
3. When it is done, you will not, I hope, be satisfied with it as the outline of a sixpence. $\dagger$ For, in the first place, it might just as well stand for the outline of the moon; and in the second, though it is true, or accurate, in the mere quality of being a circle, either the space enclosed by the inner side of the black line must be smaller,

* Not all young students can even manage their compasses; and it is well to get over this difficulty with deliberate and immediate effort. Hold your compasses upright, and lightly, by the joint at the top; fix one point quite firm, and carry the other round it any quantity of times without touching the paper, as if you were spinning a top without quitting hold of it. The fingers have to shift as the compasses revolve ; and, when well practised, should do so without stopping, checking, or accelerating the motion of the point. Practise for five minutes at a time till you get skilful in this action, considering it equally disgraceful that the fixed point of the compasses should slip, or that it should bore a hole in the paper. After you are enough accustomed to the simple mechanism of the revolution, depress the second point, and draw any quantity of circles with it, large and small, till you can draw them throughout, continuously, with perfect ease.
+ If any student object to the continued contemplation of so vulgar an object, I must pray him to observe that, vulgar as it may be, the
or that enclosed by the outside larger, than the area of a sixpence. So the closer you can screw the compass-point, the better you will be pleased with your line: only it must always happen even with the most delicate line, so long as it has. thickness at all, that its inner edge is too small, or its outer too large. It is best, therefore, that the crror should be divided between these two excesses, and that the centre of the line should coincide with the contour of the object. In advanced practice, however, outline is properly to be defined as the narrowest portion which can be conveniently laid of a dark background round an object which is to be relieved in light, or of a light background round an object to be relieved in shade. The Venetians often leave their first bright outlines gleaming round their dark figures, after the rest of the background has been added.

4. The perfect virtue of an outline, therefore,
idea of it is contentedly allowed to mingle with our most romantic ideals. I find this entry in my diary for 26th January, 1876:"To Crystal Palace, through squalor and rags of declining Dulwich : very awful. In palace afterwards, with organ playing above its rows of ghastly cream-coloured amphitheatre seats, with 'SIXPENCE' in letters as large as the organist,-occupying the full field of sight below him. Of course, the names of Mendelssohn, Orpheus, Apollo, Julien, and other great composers, were painted somewhere in the panelling above. But the real inscription-meant to be practically, and therefore divinely, instructive-was 'SIXPENCE.'
is to be absolutely accurate with its inner edge, the outer edge being of no consequence. Thus the figures relieved in light on black Greek vases are first enclosed with a line of thick black paint about the eighth of an inch broad, afterwards melted into the added background.

In dark outline on white ground, however, it is often necessary to draw the extremities of delicate forms with lines which give the limit with their outer instead of their inner edge; else the features would become too large. Beautiful examples of this kind of work are to be seen in face-drawing, especially of children, by Leech, and Du Maurier, in 'Punch.'

Loose lines, doubled or trebled, are sometimes found in work by great, never by the greatest, masters ; but these are only tentative ; processes of experiment as to the direction in which the real outline is to be finally laid.
5. The fineness of an outline is of course to be estimated in relation to the size of the object it defines. A chalk sketch on a wall may be a very subtle outline of a large picture; though Holbein or Bewick would be able to draw a complete figure within the width of one of its lines. And, for your own practice, the simplest instrument is the best; and the line drawn by any
moderately well-cut quill pen, not crow quill, but sacred goose, is the means of all art which you have first to master ; and you may be sure that, in the end, your progress in all the highest skill of art will be swift in proportion to the patience with which in the outset you persist in exercises which will finally enable you to draw with ease the outline of any object of a moderate size, (plainly visible, be it understood, and firmly terminated, $)^{*}$ with an unerring and continuous pen line.
6. And observe, once for all, there is never to be any scrawling, blotting, or splashing, in your work, with pen or anything else. But especially with the pen, you are to avoid rapid motion, because you will be easily tempted to it. Remember, therefore, that no line is well drawn unless you can stop your hand at any point of it you choose. On the other hand, the motion must be consistent and continuous, otherwise the line will not be even.
7. It is not indeed possible to say with precision how fast the point may move, while yet the eye and fingers retain perfect attention and directing power over it. I have seen a great master's hand flying over the paper as fast as gnats over a

[^6]pool; and the ink left by the light grazing of it, so pale, that it gathered into shade like grey lead ;-and yet the contours, and fine notes of character, seized with the accuracy of Holbein. But gift, of this kind is a sign of the rarest artistic faculty and tact: you need not attempt to gain. it, for if it is in you, and you work continually, the power will come of itself ; and if it is not in you, will never come ; nor, even if you could win it, is the attainment wholly desirable. Drawings thus executed are always imperfect, however beautiful: they are out of harmony with the general manner and scheme of serviceable art ; and always, so far as I have observed, the sign of some deficiency of earnestness in the worker. Whatever your faculty may be, deliberate excrcise will strengthen and confirm the good of it ; while, even if your natural gift for drawing be small, such exercise will at least enable you to understand and admire, both in art and nature, much that was before totally profitless or sealed to you.
8. We return, then, to our coin study. Now, if we are ever to draw a sixpence in a real picture, we need not think that it can always be done by looking down at it like a hawk, or a miser, about to pounce. We must be able to draw it lying anywhere, and seen from any distance.

So now raise the card, with the coin on it, slowly to the level of the eye, so as at last to look straight over its surface. As you do so, gradually the circular outline of it becomes compressed; and between the position in which you look down on it, secing its outline as a circle, and the position in which you look across it, seeing nothing but its edge, there are thus developed an infinite series of intermediate outlines, which, as they approach the circle, resemble that of an cgg, and as they approach the straight line, that of a rolling-pin ; but which are all accurately drawn curves, called by mathematicians 'ellipses,' or curves that 'leave out' something ; in this first practice you see they leare out some space of the circle they are derived from.
9. Now, as you can draw the circle with compasses, so you can draw any ellipse with a bit of thread and two pins.* But as you cannot stick your picture over with pins, nor find out, for any given ellipse, without a long mathematical operation, where the pins should go, or how long the thread should be, there is now no escape for you from the necessity of drawing the flattened shape of the sixpence with free hand.

[^7]10. And, therefore, that we may have a little more freedom for it, we will take a larger, more generally attainable, and more reverendly classic coin ; namely, the 'Soldo,' or solid thing, from whose Italian name, heroes who fight for pay were first called Soldiers, or, in English, Pennyworth-men. Curiously, on taking one by chance out of my pocket, it proves to be a Double Obolus, (Charon's fare! -and back again, let us hope,) or Ten Mites, of which two make a Five-thing. Inscribed to that effect on one side-
\[

$$
\begin{gathered}
\triangle I \Omega B O A O N \\
I O \\
\triangle E \Pi T A
\end{gathered}
$$
\]

while the other bears an effigy not quite so curly in the hair as an ancient Herakles, written around thus,-

$$
\begin{gathered}
\text { TE } \Omega P \Gamma I O \Sigma ~ A \\
B A S I A E \Upsilon \Sigma T \Omega N \text { EAAHN } \Omega N
\end{gathered}
$$

I lay this on a sheet of white paper on the table ; and, the image and superscription being, for our perspective purposes, just now indifferent, I will suppose you have similarly placed a penny before you for contemplation.
11. Take next a slicet of moderately thick note-
paper, and folding down a piece of it sharply, cut out of the folded edge a small flat arch, which, when you open the sheet, will give you an oval aperture, somewhat smaller than the penny.

Holding the paper with this opening in it upright, adjust the opening to some given point of sight, so that you see the penny exactly through it. You can trim the cut edge till it fits exactly, and you will then see the penny apparently painted on the paper between you and it, on a smaller scale.

If you make the opening no larger than a grain of oats, and hold the paper near you, and the penny two or three feet back, you will get a charming little image of it, very pretty and quaint to behold; and by cutting apertures of different sizes, you will convince yourself that you don't see the penny of any given size, but that you judge of its actual size by guessing at its distance, the real image on the retina of the cye being far smaller than the smallest hole you can cut in the paper.
12. Now if, supposing you already have some skill in painting, you try to produce an image of the penny which shall look exactly like it, seen through any" of these openings, beside the opening, you will soon feel how absurd it is to make the opening
small, since it is impossible to draw with fineness enough quite to imitate the image seen through any of these diminished apertures. But if you cut the opening only a hair's-breadth less wide than the coin, you may arrange the paper close to it by putting the card and penny on the edge of a book, and then paint the simple image of what you see (penny only, mind, not the cast shadow of it), so that you can't tell the one from the other; and that will be right, if your only object is to paint the penny. It will be right also for a flower, or a fruit, or a feather, or aught else which you are observing simply for its own sake.
13. But it will be natural-history painting, not great painter's painting. A great painter cares only to paint his penny while the steward gives it to the labourer, or his twopence while the Good Samaritan gives it to the host. And then it must be so painted as you would see it at the distance where you can also see the Samaritan.
14. Perfectly, however, at that distance. Not sketched or slurred, in order to bring out the solid Samaritan in relief from the aerial twopence.

And by being 'perfectly' painted at that distance, I mean, as it would be seen by the human eye in the perfect power of youth. That for ever indescribable instrument, aidless, is the proper means
of sight, and test of all laws of work which bear upon aspect of things, for human beings.

1 5 . Having got thus much of general principle defined, we return to our own immediate business, now simplified by having ascertained that our elliptic outline is to be of the width of the penny proper, within a hair's-breadth, so that, practically, we may take accurate measure of the diameter, and on that diameter practise clrawing ellipses of different degrees of fatness. If you have a master to help, you, and see that they are well drawn, I need not give you farther direction at this stage; but if not, and we are to go on by ourselves, we must have some more compass work; which reserving for next chapter, I will conclude this one with a few words to more advanced students on the use of outline in study from nature.
i6. I. Lead, or silver point, outline.
It is the only one capable of perfection, and the best of all means for gaining intellectual knowledge of form. Of the degrees in which shade may be wisely united with it, the drawings of the figure in the early Florentine schools give every possible cxample: but the severe method of engraved outline used on Etruscan metal-work is the standard appointed by the laws of Fésole. The finest application of such method may be seen in the

Florentine engravings, of which more or less perfect facsimiles are given in my 'Ariadne Florentina.' Raphael's silver point outline, for the figure, and Turner's lead outline in landscape, are beyond all rivalry in abstract of graceful and essential fact. Of Turner's lead outlines, examples enough exist in the National Gallery to supply all the schools in England, when they are properly distributed.*
17. II. Pen, or woodcut, outlinc. The best means of primal study of composition, and for giving vigorous impression to simple spectators. The woodcuts of almost any Italian books towards I500, most of Duirer's (a),—all Holbein's ; but especially those of the ' Dance of Death' (b), and the etchings by Turner himself in the 'Liber Studiorum,' are standards of it (c). With a light wash of thin colour above, it is the noblest method of intellectual study of composition; so employed by all the great Florentine draughtsmen, and by

[^8](a) I have put the complete series of the life of the Virgin in the St. George's Museum, Sheffield.
(b) First edition, also in Sheffield Museum.
(c) 'Esacus and Hesperie,' and 'The Falls of the Reuss,' in Sheffield Museum.

Mantegna (d). Holbein and Turner carry the method forward into full chiaroscuro ; so also Sir Joshua in his first sketches of pictures (e).
i8. III. Outline with the pencil. Much as I have worked on illuminated manuscripts, I have never yct been able to distinguish, clearly, pencilled outlines from the penned rubrics. But I shall gradually give large examples from thirteenth century work which will be for beginners to copy with the pen, and for advanced pupils to follow with the pencil.
19. The following notes, from the close of one of my Oxford lectures on landscape, contain the greater part of what it is necessary farther to say to advanced students* on this subject.

When forms, as of trees or mountain edges, are so complex that you cannot follow them in

* I find this book terribly difficult to arrange ; for if I did it quite rightly, I should make the exercises and instructions progressive and consecutive ; but then, nobody would see the reason for them till we came to the end ; and I am so encumbered with other work that I think it best now to get this done in the way likeliest to make each part immediately useful. Otherwise, this chapter should have been all about right lines only. and then we should have had one on the arrangement of right lines, followed by curves, and arrangement of curves.
(d) 'The Triumph of Joseph.' Florentine drawing in Sheffield Museum.
(e) Two, in Sheffield Museum.
detail, you are to enclose them with a careful outside limit, taking in their main masses. Suppose you have a map to draw on a small scale, the kind of outline which a good geographical draughtsman gives to the generalized capes and bays of a country, is that by which you are to define too complex masses in landscapes.

An outline thus perfectly made, with absolute decision, and with a wash of one colour above it, is the most masterly of all methods of light and shade study, with limited time, when the forms of the objects to be drawn are clear and unaffected by mist.

But without any wash of colour, such an outline is the most valuable of all means of obtaining such memoranda of any scene as may explain to another person, or record for yourself, what is most important in its features ; only when it is thus used, some modification is admitted in its treatment, and always some slight addition of shade becomes necessary in order that the outline may contain the utmost information possible. Into this question of added shade I shall proceed hereafter.
20. For the sum of present conclusions: observe that in all drawings in which flat washes of colour are associated with outline, the first great point is entirely to suppress the influences of impati-
ence and affectation, so that if you fail, you may know exactly in what the failure consists. Be sure that you spread your colour as steadily as if you were painting a house wall, filling in every spot of white to the extremest corner, and removing every grain of superfluous colour in nooks and along edges. Then when the tint is dry, you will be able to say that it is either too warm or cold, paler or darker than you meant it to be. It cannot possibly come quite right till you have long experience ; only, let there be no doubt in your mind as to the point in which it is wrong; and next time you will do better.

2I. I cannot too strongly, or too often, warn you against the perils of affectation. Sometimes colour lightly broken, or boldly dashed, will produce a far better instant effect than a quietly laid tint ; -and it looks so dextrous, or so powerful, or so fortunate, that you are sure to find everybody liking your work better for its insolence. But never allow yourself in such things. Efface at once a happy accident-let nothing divert you from the purpose you began with-nothing divert or confuse you in the course of its attainment; let the utmost strength of your work be in its continence, and the crowning grace of it in serenity.

And even when you know that time will not
permit you to finish, do a little piece of your drawing rightly, rather than the whole falsely: and let the non-completion consist either in that part of the paper is left white, or that only a foundation has been laid up to a certain point, and the second colours have not gone on. Let your work be a good outline-or part of one ; a good first tint-or part of one; but not, in any sense, a sketch; in no point, or measure, fluttered, neglected, or experimental. In this manner you will never be in a state of weak exultation at an undeserved triumph; neither will you be mortified by an inexplicable failure. From the beginning you will know that more than moderate success is impossible, and that when you fall short of that due degree, the reason may be ascertained, and a lesson learnt. As far as my own experience reaches, the greater part of the fatigue of drawing consists in doubt or disappointment, not in actual effort or reasonable application of thought; and the best counsels I have to give you may be summed in these,-to be constant to your first purpose, content with the skill you are sure of commanding, and desirous only of the praises which belong to patience and discretion.

## CHAPTER V.

## OF ELEMENTARY FORM.

I. N the 15 th paragraph of the preceding chapter, we were obliged to leave the drawing of our ellipse till we had done some more compass work. For, indeed, all curves of subtle nature must be at first drawn through such a series of points as may accurately define them; and afterwards without points, by the free hand.

And it is better in first practice to make these points for definition very distinct and large ; and even sometimes to consider them rather as beads strung upon the line, as if it were a thread, than as mere points through which it passes.
2. It is wise to do this, not only in order that the points themselves may be easily and unmistakably set, but because all beautiful lines are beautiful, or delightful to sight, in showing the directions in which material things may be wisely arranged, or may serviceably moze. Thus, in Plate I, the curve which terminates the hen's feather pleases
me, and ought to please you, better than the point of the shield, partly because it expresses such relation between the lengths of the filaments of the plume as may fit the feather to act best upon the air, for flight ; or, in unison with other such softly inlaid armour, for covering.
3. The first order of arrangement in substance is that of coherence into a globe; as in a drop of water, in rain, and dew,--or, hollow, in a bubble : and this same kind of coherence takes place gradually in solid matter, forming spherical knots, or crystallizations. Whether in dew, foam, or any other minutely beaded structure, the simple form is always pleasant to the human mind; and the 'pearl' -to which the most precious object of human pursuit is likened by its wisest guide,-derives its delightfulness merely from its being of this perfect form, constructed of a substance of lovely colour.
4. Then the second orders of arrangement are those in which several beads or globes are associated in groups under definite laws, of which of course the simplest is that they should set themselves together as close as possible.

Take, therefore, eight marbles or beads* about

[^9]three-quarters of an inch in diameter; and place successively two, three, four, etc., as near as they will go. You can but let the first two touch, but the three will form a triangular group, the four a square one, and so on, up to the octagon. These are the first general types of all crystalline or inorganic grouping : you must know their propertics well; and therefore you must draw them neatly.
5. Draw first the line an inch long, which you have already practised, and set upon it five dots, two large and three small, dividing it into quarter inches,-A B, Plate 3. Then from the large dots as centres, through the small ones, draw the two circles touching each other, as at C.

The triangle, equal-sided, each side half an inch, and the square, in the same dimensions, with their dots, and their groups of circles, are given in succession in the plate; and you will proceed to draw the pentagon, hexagon, heptagon, and octagon group, in the same manner, all of them half an inch in the side. All to be done with the lead, free hand, corrected by test of compasses till you get them moderately right, and finally drawn over the lead with common steel pen and ink.

The degree of patience with which you repeat, to perfection, this very tedious exercise, will be a
wholesome measure of your resolution and general moral temper, and the exercise itself a discipline at once of temper and hand. On the other hand, to do it hurriedly or inattentively is of no use whatever, either to mind or hand.
6. While you are persevering in this exercise, you must also construct the same figures with your instruments, as delicately as you can ; but complete them, as in Plate 4, by drawing semicircles on the sides of each rectilinear figure; and, with the same radius, the portions of circles which will include the angles of the same figures, placed in a parallel series, enclosing each figure finally in a circle.
7. You have thus the first two leading groups of what architects call Foils ;-i.e., trefoils, quatrefoils, cinquefoils, etc.,-their French names indicating the original dominance of French design in their architectural use.

The entire figures may be best called 'Roses,' the word rose, or rose window, being applied by the French to the richest groups of them. And you are to call the point which is the centre of each entire figure the 'Rose-centre.' The arcs, you are to call 'foils;' the centres of the arcs, 'foilcentres ;' and the small points where the arcs meet, 'cusps,' from cuspis, Latin for a point.
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[^0]:    * In sculpture, the materials are necessarily so varied, and the circumstances of place so complex, that it would seem like an affected stretching of principle to say there is only one proper method of sculpture: yet this is also true, and any handing of marble differing from that of Greek workmen is inferior by such difference.

[^1]:    * A great many people do not know green from red; and such kind of persons are apt to feel it their duty to write scientific treatises on colour, edifying to the art-world.
    $\dagger$ Bcautiful and true shade can be produced by a machine fitted to the surface, but no machine can outline.
    $\ddagger$ Sce explanation of term, p. 26.

[^2]:    * I have not been able yet to devise a quite simple and sufficient case of drawing instruments for my schools. But, at all events, the complete instrument-case must include the ivory scale, the black parallel rule, a divided quadrant (which I will give a drawing of when it is wanted), one pair of simple compasses, and one fitted with pen and pencil.
    $\dagger$ Any dark colour that will wash off their fingers may be prepared for children.

[^3]:    * The original drawings for all these plates will be put in the Sheffield Museum ; bnt if health remains to me, I will prepare others of the same kind, only of different subjects, for the other schools of St. George. The engravings, by Mr. Allen's good skill, will, I doubt not, be better than the originals for all practical purposes; especially as my hand now slakes more than his, in small work.

[^4]:    * See notice of this series in Preface.
    $\dagger$ The Latin 'penicillum' originally meant a 'little tail,' as of the ermine. My friend Mr. Alfred Tylor informs me that Newton was the first to apply the word to light, meaning a pointed group of rays.

[^5]:    * That is to say, not a particularly small one; but let it be of good quality. Under the conditions of overflowing wealth which reward our national manufacturing industry, I find a curious tendency in my pupils to study economy especially in colours and brushes. Every now and then I find a student using a brush which bends up when it touches the paper, and remains in the form of a fish-hook. If I advise purchase of a better, he-or she-says to me, "Can't I do something with this?" "Yes,-something, certainly. Perhaps you may paste with it ; but you can't draw. Suppose I was a fencingmaster, and you told me you couldn't afford to bny a foil,-would you expect me to teach you to fence with a poker?"

[^6]:    * By 'firmly terminated,' I mean having an outline which can be drawn, as that of your sixpence, or a book, or a table. You can't outline a bit of cotton wool, or the flame of a candle.

[^7]:    * No method of drawing it by points will give a finely continums line, until the hand is free in passing through the points.

[^8]:    * My kind friend Mr. Burton is now so fast bringing all things under his control into good working order at the National Gallery, that I have good hope, by the help of his influence with the Trustees, such distribution may be soon effected.

[^9]:    * In St. George's schools, they are to be of pale rose-coloured or amber-coloured quartz, with the prettiest veins 1 can find it bearing : there are any quantity of tons of rich stone ready for us, waste on our beaches.

